Laser Transmitter Assembly for Optical Communication Demonstrator

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ABSTRACT

A modulated fiber-coupled diode laser, which will serve as the Laser Transmitter assembly (LXA) for Optical Communication Demonstrator (OCD) system, has been developed. The laser is capable of greater than 20 mW of output at 100 Mbps Q-PPM modulation. It consists of a high-speed driver, a controller to maintain output amplitude under varying duty cycles, and a temperature controller to control output wavelength. The driver provides 280 mA peak modulation current with an optical pulse risetime of approximately 1 ns. The switching speed is limited by the inductance of the laser mount and the cable connecting the driver to the mount. The laser is coupled to a single-mode polarization preserving fiber that can feed directly into the telescope assembly of OCD.

Conference

Free-Space laser communications V]. Conference Chair: G. Stephen Mecherle, TRW inc.

Presentation

An oral presentation is preferred.

Biography

11.1 Iemmati received M.S. from USC and Ph.D. from Colorado State University both in Physics. After a two year postdoctoral fellowship at NIST (Boulder), he joined Allied Corp. working exclusively at the Gaddard Space Flight Center. He joined the JPL's the Optical Communications Group in 1976. 1 lis current interests are development of diode-pumped solid-state laser transmitters, and design and development of small optical comm packages for future mini-spacecraft missions,

D. Copeland received his B.S. from the Virginia Poly. inst. and the State University in 1985 and is currently pursuing an M.S. in Electrophysics at the U. of Maryland. He has worked in the field of microwave research and design for seven years. 1 lis major interests are high-frequency behavior of high power laser diodes, hich-power optoelectronic circuit design and microwave communications design.